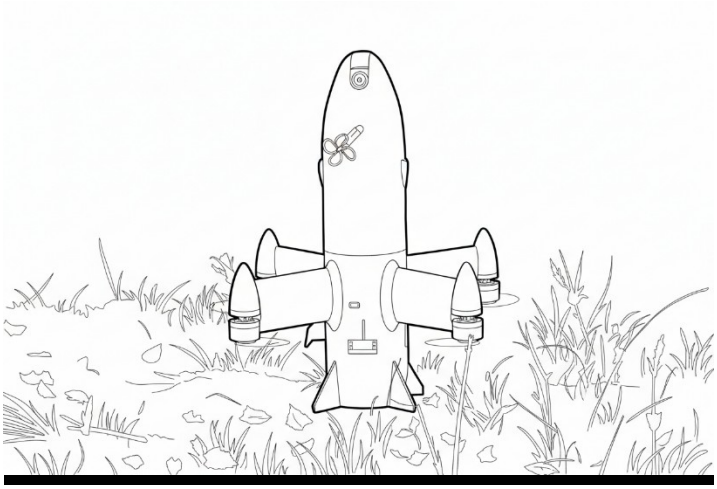
Air Domain — C-UAS Interceptor Drones

P1-Sun



IDENTITY & DESIGNATION

Official Designation: P1-Sun (also written P1-SUN)

Manufacturer: SkyFall (Ukrainian drone manufacturer, founded 2022)

Country of Origin: Ukraine

Year Introduced: Unveiled Nov 2025 (Dubai Airshow); combat deployment confirmed Dec 2025

Development Status: IN PRODUCTION — Thousands produced monthly; frontline troops involved in development; active iteration with field feedback

Unit Cost (est.): Just over $1,000 per unit

Company Portfolio: Vampire bomber drone (on US DIU Blue UAS List); Shrike FPV drone; P1-Sun interceptor

CLASSIFICATION

Domain: Air

Category: Military / Tactical — C-UAS Interceptor Drone

Sub-Category: Fixed-wing kinetic interceptor (one-way attack against aerial targets)

Terminal Mode: Expendable (kinetic kill / proximity detonation)

Expendable: Yes — one-use per engagement

PHYSICAL SPECIFICATIONS

Airframe: 3D-printed; modular design allowing rapid component swap (camera, radio module, battery, explosive payload)

Weight: Unknown — lightweight, man-portable

Payload Capacity: Up to 800 g explosive payload for proximity or contact detonation

Domestic Content: ~90% Ukrainian-made components; only imported element is camera (localization planned)

Maintenance: Key elements swappable without specialized tools and minimal downtime

PROPULSION & PERFORMANCE

Propulsion Type: Electric motor(s)

Max Speed: 300+ km/h (initial); since increased by 50% to ~450 km/h

Max Altitude: 5,000 m (sufficient for low-flying targets including some cruise missile classes)

Max Range: 17–23 km (sources vary; 23 km per Defence Matters)

Max Flight Time: 14+ minutes with payload; 17+ minutes per some sources

Thrust-to-Weight: High — strong thrust-to-weight ratio enables aggressive maneuvering

GUIDANCE, NAVIGATION & CONTROL

Control Link: Remote control with varying automation levels

Navigation: GPS + visual tracking

Autonomy Level: Semi-autonomous to potentially autonomous; designed for remote control and "prospect of pilotless operation"

Target Acquisition: Requires external detection/tracking chain (radar, EO, acoustic, fused networks) for target assignment

Engagement Method: High-speed intercept; proximity or contact detonation of 800g warhead

Launch Options: Multiple carrier types; distributed launch points for coverage

SENSORS & PAYLOADS

Camera: Onboard camera for terminal guidance (currently imported; localization planned)

Warhead: 800 g explosive (proximity/contact fuse)

Modular Bays: Interchangeable mission modules: drone interception mechanisms or combat modules for direct target engagement

COUNTERMEASURE VULNERABILITY PROFILE

RF Jamming: MODERATE — Depends on control link implementation; higher autonomy reduces vulnerability

GPS Spoofing: MODERATE — GPS-dependent but short mission duration limits exposure window

EMI/EMC Attack: MODERATE — Commercial electronics but very short engagement timeline reduces window

Laser DEW: LOW to MODERATE — High speed (300–450 km/h) significantly reduces dwell time for laser engagement

Kinetic Intercept: LOW — Small, fast, potentially unpredictable flight path makes kinetic intercept difficult

Overall Vulnerability Rating: MODERATE — Speed and small size are primary defenses; short mission duration limits exposure to most countermeasures

CRUISE MISSILE CONVERGENCE NOTES

The P1-Sun is fascinating from the convergence perspective because it's a drone designed specifically to kill other drones—and it does so using kinetic intercept principles borrowed from missile defense. At 300–450 km/h with a proximity-fuse warhead, it's essentially a very small, very cheap guided missile optimized for the anti-drone mission. The cost-exchange ratio is transformative: at ~$1,000 per interceptor vs $20,000–$50,000 per Shahed (or $500K–$3M per traditional air defense missile), the P1-Sun reverses the attacker's cost advantage. The confirmed Christmas Day 2025 kill of a jet-powered Shahed variant validates the concept operationally. Production at thousands per month means Ukraine can match Russian drone volume with proportional interceptor volume—approaching the defender's holy grail of cost-parity attrition.

⚠ **PETER NOTE:** *This is the kinetic complement to laser C-UAS. Laser = unlimited magazine, limited by power/range/weather. P1-Sun = unlimited production at $1K/unit, limited by being expendable. Together they form two pillars of affordable layered C-UAS. The Smart Net Round concept fits as a third pillar: capture rather than destroy.*

OPERATIONAL HISTORY

Nov 2025: Unveiled at Dubai Airshow; Bloomberg reported SkyFall producing thousands monthly

Dec 25, 2025: Confirmed intercept of jet-powered Shahed modification (speeds above standard Shahed-136); filmed by companion drone

Production Scale: Thousands per month; SkyFall expanding production capacity for domestic and potential export markets

US Interest: Vampire drone on DIU Blue UAS List; SkyFall participated in DIU Artemis program; manufacturing in America discussed pending gov-to-gov agreements

Export Activity: Displayed at Dubai Airshow 2025; World Defense Show 2026 (Riyadh); active international marketing

SOURCES & CROSS-REFERENCES

Army Recognition: https://www.armyrecognition.com/…/ukraines-skyfall-unveils-p1-sun-interceptor-drone-to-hunt-shahed-threats-at-world-defense-show-2026

BAVOVNA.ai: https://bavovna.ai/uav/p1-sun/

Aeronaut Media: https://aeronaut.media/articles-en/en-p1-sun-ukrainian-drone-from-skyfall/

Breaking Defense: https://breakingdefense.com/2025/11/ukrainian-drone-maker-skyfall-shows-off-tech-at-dubai-airshow-eyes-us-nato-market/

Defence Matters (intercept footage): https://defencematters.eu/p1-sun-interceptor-filmed-destroying-shahed-in-coordinated-ukrainian-drone-engagement/

Cross-Ref: See also: Switchblade 600 (US loitering munition for comparison); Shark Drone concept (Drone Bible, taser-based interceptor); Smart Net Round (Drone Bible, net capture); Sunray/Tryzub/Slim Beam (laser alternatives to kinetic intercept)